

ABSTRACT OF THE DISCLOSURE

A modulation apparatus is disclosed that enables significant improvements in signal transmission rate in a limited frequency band as compared with conventional modulation schemes. The modulation apparatus has first and second frequency-increasing single side band (SSB) modulators. The modulators are configured to have respective carrier frequencies with a difference by a frequency corresponding to the symbol frequency (i.e. fundamental frequency of the input symbol). An adder combines a lower side band (LSB) signal obtained from the SSB modulator set for a higher carrier frequency, and an upper side band (USB) signal obtained from the SSB modulator set for a lower carrier frequency to obtain a modulation signal.

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